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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/549,872	09/11/2006	Kevin J. Schrage	00758.1511USWO	5901
23552	7590	09/02/2010	EXAMINER	
MERCHANT & GOULD PC P.O. BOX 2903 MINNEAPOLIS, MN 55402-0903			CLEMENTE, ROBERT ARTHUR	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/549,872

Applicant(s)

SCHRAGE ET AL.

Examiner

ROBERT A. CLEMENTE

Art Unit

1797

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 July 2010.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 49-67 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 49-67 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 06 February 2009 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/GS/US)
Paper No(s)/Mail Date _____

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on July 19, 2010 has been entered.

Response to Arguments

2. Applicant's arguments filed July 19, 2010 have been fully considered but they are not persuasive.

Applicant generally makes observations as to why the current method, recited in claim 49 of the present application, is non-obvious over Gillingham (WO 97/40917). Applicant notes that Gillingham does not show an oval or oblong filter unit that does not have a central core. Applicant also notes that there is no implied disclosure in Gillingham of making an oval racetrack unit from a circular unit. A reference, however, is considered for all it teaches not just what is shown in the figures. Gillingham discusses making coiled filter constructions with no central cores. Although Gillingham may not show an obround construction with no center core, one of ordinary skill in the art would reasonably expect that one could be made as long as the central opening is squeezed closed and provided with sealant. Gillingham may not distinctly discuss distorting a

circular media to an obround media. Gillingham does disclose distorting circular filter media to shape them. Gillingham further discloses that media can be formed into obround shapes. It is well with the understanding of skilled artisan that squeezing a circular shape on two sides will result in an obround shape. As obround shapes are known in the art, it would have been obvious to one of ordinary skill in the art at the time of the invention to shape a circular filter media construction into an obround filter media construction so it can be used in a housing that accepts obround filter media.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 49 - 67 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
5. Claim 49 recites "distorting the generally circular coiled configuration having a central aperture to a media construction having a racetrack shape". It is unclear what shape is meant by "racetrack shape". Racetracks can have circular shapes, in which case it is unclear what distortion has been performed. Racetracks can also have figure 8 shapes. It is unclear how the circular coiled configuration can be distorted into a figure 8 shape. For the purpose of examination a "racetrack shape" is considered to be a shape with generally obround or oval shape. Claims 50 - 67 depend from claim 49 and are also rejected.

Additionally, it is noted that claim 67 depends from claim 18 which has been cancelled. For the purpose of examination, claim 67 is considered as if it depends from claim 65.

Claim Rejections - 35 USC § 103

6. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
7. Claims 49 - 51, 54 - 56, 59, 61, 65, and 66 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gillingham (WO 97/40917).

Gillingham teaches a method of preparing a z-filter media construction by coiling a sheet of filter media (48) about a central mandrel (54), or hub, as shown in figure 5. The filter media sheet (48), as shown in figure 4, includes a corrugated sheet (30) and a facing sheet (32). The filter media is provided as a construction comprising a fluted filter media sheet secured to a facing filter media sheet with a first seal therebetween. As disclosed in page 9 lines 26 - 28, the central mandrel (54) can be removable, thus a coreless coil would be formed. A coreless cylindrical coil inherently would have an open center. As disclosed in page 9 lines 28 - 30, Gillingham discloses it is possible to wind the media into other shapes, such as oblong or oval shapes. These shapes inherently have two, opposite, rounded ends separated by two, opposite, sides. As disclosed in page 9 lines 30 - 31, the filter elements can also be selectively compressed, or distorted, to shape the filter elements. One of ordinary skill in the art would reasonably consider "shaping" the filter element to encompass a change from a first shape to a

completely different second shape. Additionally, changing a shape from cylindrical to oval or oblong predictably would require pressing on opposite sides of the cylinder to flatten them out. Thus, the coreless cylindrical filter element (52) inherently could be formed into an oblong, or obround, shape by compressing the cylindrical element. The compressing step inherently would result in pressing on a side area of the coil in order to form the flatter sides of an oblong shape. Gillingham does not disclose providing a seal in the media center of the circular coiled configuration when the mandrel is removed. One of ordinary skill in the art, however, would predictably expect that it would be desirable to seal the center of the filter element otherwise a fluid stream to be filtered could pass straight through without being filtered. The distorting of the circular coiled configuration inherently acts to close the central opening. Predictably, in distorting from a circular shape to a shape having two straight sides the central opening would be closed to allow the sealant to block any flow through the central opening. As shown in figures 17 - 21 and 24, all of the obround filter media include a housing seal. Thus, after the filter media is formed a housing seal inherently is positioned on the media construction.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Gillingham to distort the cylindrical coil to an oval or oblong shape with the media center sealed closed with a sealant material in order to form a non-circular filter element when only circular mandrels or hubs are available and to force all of the fluid to pass through the filter media.

In regard to claim 50, Gillingham discloses forming generally circular coiled configurations where the filter media is coiled on a hub and then the hub is removed to provide a coreless coil, which will have a central open space. This coreless circular configuration is then distorted in the obvious modification of Gillingham discussed above.

In regard to claim 51, the seal that is formed between the facing sheet and the fluted sheet can be considered a sealant strip.

In regard to claim 54, 65, and 66, as shown in figures 17 - 21, the housing seal (158) is provided on a bracket (154), or framework. Thus, to make the filter element the framework must be positioned of the filter media construction and the housing seal provided on the framework.

In regard to claim 55, as discussed above, the obvious modification of Gillingham provides a method to distort a coreless circular media coil into an obround or racetrack shaped media coil. A coreless obround shape inherently includes a center strip of the z-filter media construction. Gillingham does disclose how many flutes are located along this center strip. One of ordinary skill in the art would reasonably expect, however, that the length, and thus the number of flutes, of the center strip is related to the overall size of the coil. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Gillingham to include at least six interdigitized flutes along the center strip in order to provide a filter coil of the desired size.

In regard to claim 56, in order to seal the central opening the circular coil is distorted such that a sealant strip forms a central seal in the coiled construction having an obround shape with no center core.

In regard to claim 59, in Gillingham the facing sheet is flat and non-corrugated, as best shown in figures 1 and 6.

In regard to claim 61, Gillingham discloses using a winding hub to form a circular coiled configuration. The winding hub inherently includes a catch slot that holds an extension of the filter media construction.

8. Claim 52, 53 and 57 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gillingham as applied to claims 49 - 51, 54 - 56, 59, 61, 65, and 66 above, and further in view of Wydeven (US 6,743,317).

Gillingham is discussed above in section 7. In regard to claim 52, as shown in figure 5, the step of coiling in Gillingham comprises winding a corrugated/facing sheet strip including a backside sealant bead (40). Gillingham, however, does not distinctly disclose the material used to form the sealant bead (40). Wydeven discloses a similar coiled filter element, as shown in figure 4a. The flutes are alternatively sealed at both ends by sealant beads (40, 42). As disclosed in column 8 lines 47 - 50, the sealant beads (40, 42) can be formed by foaming urethane resins.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Gillingham to use a foaming urethane material to form the backside

sealant bead as suggested by Wydeven since this type of material is known in the art to form an effective sealant in coiled filter elements.

In regard to claim 53, as discussed above, Wydeven provides the reference teaching a sealant bead that foams. In order to foam, the sealant bead inherently must increase in volume. Wydeven, however, does not disclose the increase in volume of the urethane seal during cure. The increase in volume inherently is caused by gas bubbles formed in the urethane. One of ordinary skill in the art would reasonably expect that a larger increase in volume would result from more or larger gas bubbles in the urethane. More gas bubbles would provide a lighter sealant material, but would also reduce the strength and increase the porosity of the sealant. One of ordinary skill in the art predictably could determine the optimal degree of foaming, thus the optimal increase in volume, through routine experimentation to form a seal with the best balance of weight and seal strength.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Gillingham and Wydeven to use a foaming urethane that increases in volume by 40% during curing in order given this value produces a sealant material having the desired weight and sealing properties. Where patentability is said to be based upon particular chosen dimensions or upon another variable recited in the claim, the applicant must show that the chosen dimensions are critical, see *In re Woodruff* 16 USPQ2d 1934.

In regard to claim 57, as discussed above, Wydeven discloses using polyurethane as a sealant material in fluted filter media. It would have been obvious to

one of ordinary skill in the art at the time of the invention to modify Gillingham to include a central seal made from polyurethane inside of the coreless coil as suggested by Wydeven as it is known in the art to use polyurethane as a sealant material in fluted filter media.

9. Claims 58, 62 - 64, and 67 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gillingham as applied to claims 49 - 51, 54 - 56, 59, 61, 65, and 66 above, and further in view of Gieseke (US 6,610,117).

Gillingham is discussed above in section 7. In regard to claim 58, Gillingham does not disclose the material of the housing seal (158). As discussed in column 8 lines 23 - 34, Gieseke discloses a housing seal (250) made from a foamed polyurethane.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Gillingham to include a foamed polyurethane housing seal secured to the outer surface of the media construction through the bracket (154) as suggested by Gieseke as it is known in the art to use foamed polyurethane to form a housing seal.

In regard to claims 62 and 63, Gillingham provides the steps of forming a coil and distorting it to an obround shape. The coil inherently includes a tail end of the media; however, Gillingham does not disclose sealing the tail end of the media along its length by a sealant. As shown in figure 1 and discussed in column 5 lines 40 - 45, Gieseke discloses a coiled filter media with a trail edge, or tail end, that is sealed along line "160" to secure it to the outside surface of the media coil. The sealant is disclosed to be a hot-melt sealant.

Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Gillingham to seal the tail end along its length to the outside of the media coil using a hot-melt sealant as suggested by Gieseke as a means to keep the media coiled.

In regard to claim 64, Gillingham is used as the primary reference teaching the steps of forming a coil and distorting it to an obround shape. As discussed above, the coil inherently includes a tail end of the media. Gillingham, however, does not disclose where the tail end is located after the distorting step. Gieseke is used as the secondary reference disclosing a racetrack shape media. Gieseke does not disclose where along the racetrack shape the tail end of the media is located. One of ordinary skill in the art would reasonably expect the media could be formed in the racetrack shape regardless of where the tail end is located. There is no evidence the location of the tail end is critical. The coil could be oriented in any manner as a design choice prior to being distorted so that the tail could be located anywhere along the outside of the media.

Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Gillingham and Gieseke to locate the tail end along a straight side as a matter of design choice.

In regard to claim 67, Gillingham does not disclose a framework having a plastic cross piece positioned as a face lattice. Gieseke discloses a housing member (650) and frame (605) on the obround or racetrack shaped filter element shown in figure 10. The seal member (650) and frame (605) together form a housing seal. The frame (605)

includes a plastic cross piece (614) positioned as a face lattice. The frame (605) allows for a radial seal with a housing.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Gillingham to mount a framework having a plastic cross piece positioned as a face lattice to the filter media construction as suggested by Gieseke in order to allow the filter media construction to be used in housing that requires radial sealing.

Allowable Subject Matter

10. Claim 60 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

11. The following is a statement of reasons for the indication of allowable subject matter:

There is no teaching or suggestion in Gillingham for applying the second sealant strip to the fluted sheet before coiling with: a selected amount of sealant applied a first distance from a nearest edge of the filter media construction at a first location of the filter media construction adjacent a lead edge of the strip; a selected amount of sealant applied to a second distance from the nearest edge of the filter media construction in a second location of the filter media construction following the first portion, the first distance being further than the second distance; and, a selected amount of sealant applied a location of the filter media construction near a tail end and at a location further

from a closest edge than the sealant on the second portion of the filter media construction.

Conclusion

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ROBERT A. CLEMENTE whose telephone number is (571)272-1476. The examiner can normally be reached on M-F, 7:00-3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Marcheschi can be reached on (571) 272-1374. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Robert A Clemente/
Examiner, Art Unit 1797